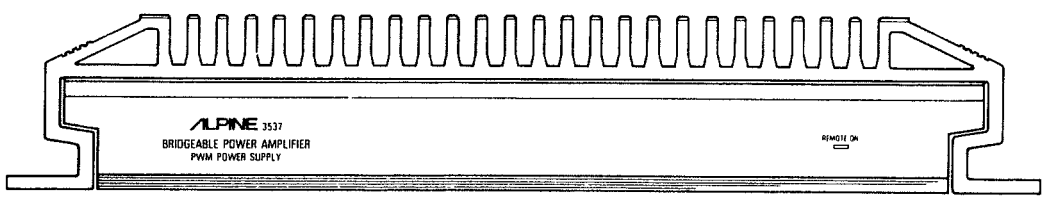
# ALPINE SERVICE MANUAL

## BRIDGEABLE

## POWER AMPLIFIER




# 3537

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# Specifications

**1. 4 ohms 2-channel stereo mode**

| | |
|---|---|
| Power Output (1 kHz, 8% THD) | 100 W/CH |
| Rated Power Output (20 Hz ~ 20 kHz, 0.1% THD) | 80 W/CH |
| Input Sensitivity (Rated Power Output) | Fix. 500 mV ± 10%<br>Var. 100 mV ± 30%, 2 V ± 30% |
| T.H.D (at 80 W Power Output, 20 Hz to 20 kHz) | 0.08% |
| Frequency Response (–1 dB at 1 W Output) | 20 Hz to 20 kHz |
| Current Drain (Rated Power Output) | 30 A |
| Channel Separation (at 1 kHz) | 60 dB |
| Signal to Noise Ratio (IHF-A, at Rated Power Output) | 100 dB |
| Speaker Impedance | 4 ohms |

**2. 2 ohms 2-channel stereo mode**

| | |
|---|---|
| Power Output (1 kHz, 8% THD) | 110 W/CH |
| Rated Power Output (20 Hz ~ 20 kHz, 0.1% THD) | 80 W/CH |
| T.H.D (at 80 W Power Output, 20 Hz to 20 kHz) | 0.1% |
| Frequency Response (–1 dB at 1 W Output) | 20 Hz to 20 kHz |
| Current Drain (Rated Power Output) | 35 A |
| Signal to Noise Ratio (IHF-A, at Rated Power Output) | 100 dB |
| Speaker Impedance | 2 ohms |

**3. 4 ohms BTL mono mode**

| | |
|---|---|
| Power Output (1 kHz, 8% THD) | 220 W/CH |
| Rated Power Output (20 Hz ~ 20 kHz, 0.1% THD) | 110 W/CH |
| T.H.D (at 160 W Power Output, 20 Hz to 20 kHz) | 0.08% |
| Frequency Response (–1 dB at 1 W Output) | 20 Hz to 20 kHz |
| Current Drain (160 W Power Output) | 35 A |
| Speaker Impedance | 4 ohms |

**4. General**

| | |
|---|---|
| Fuse Requirement | 30 A (Battery) 3 A (ACC)<br>3 A (Battery) |
| Power Source | 14.4 V DC |
| Semiconductors | 4 ICs, 51 Transistors, 29 Diodes, 10 Zener Diodes |
| Dimensions (WxHxD) | 300 x 55 x 200 mm |
| Weight | 3.4 kg |

# Parts Locations and Disassembly Instructions

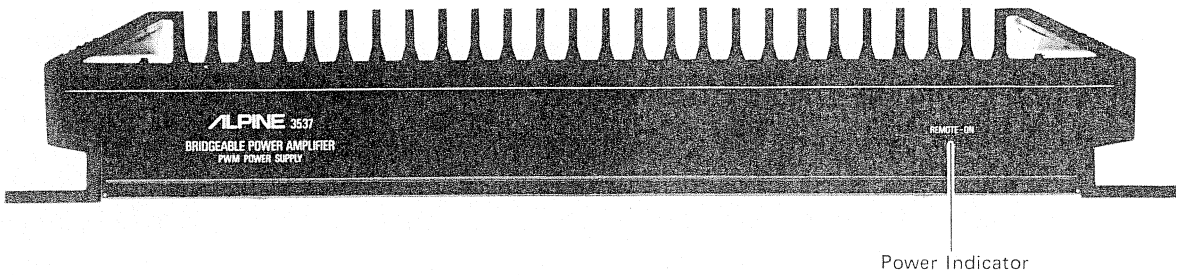



Figure 1

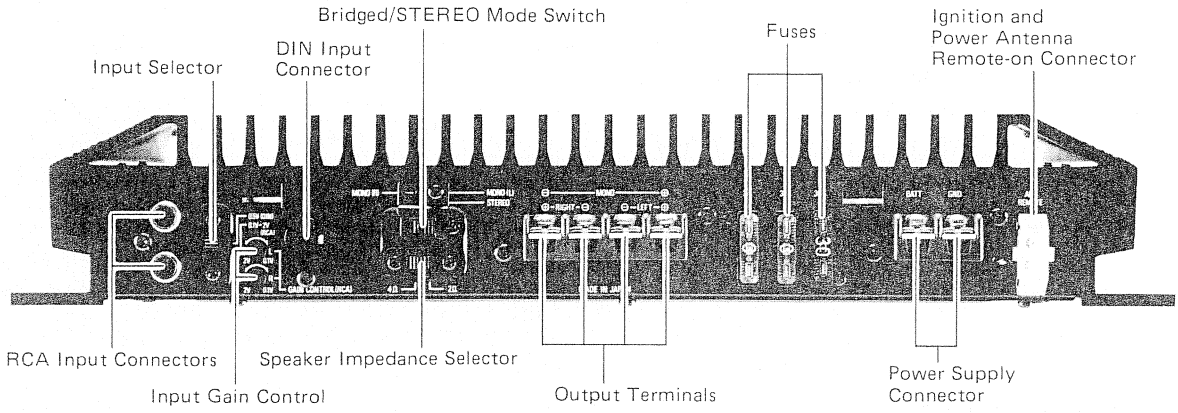



Figure 2

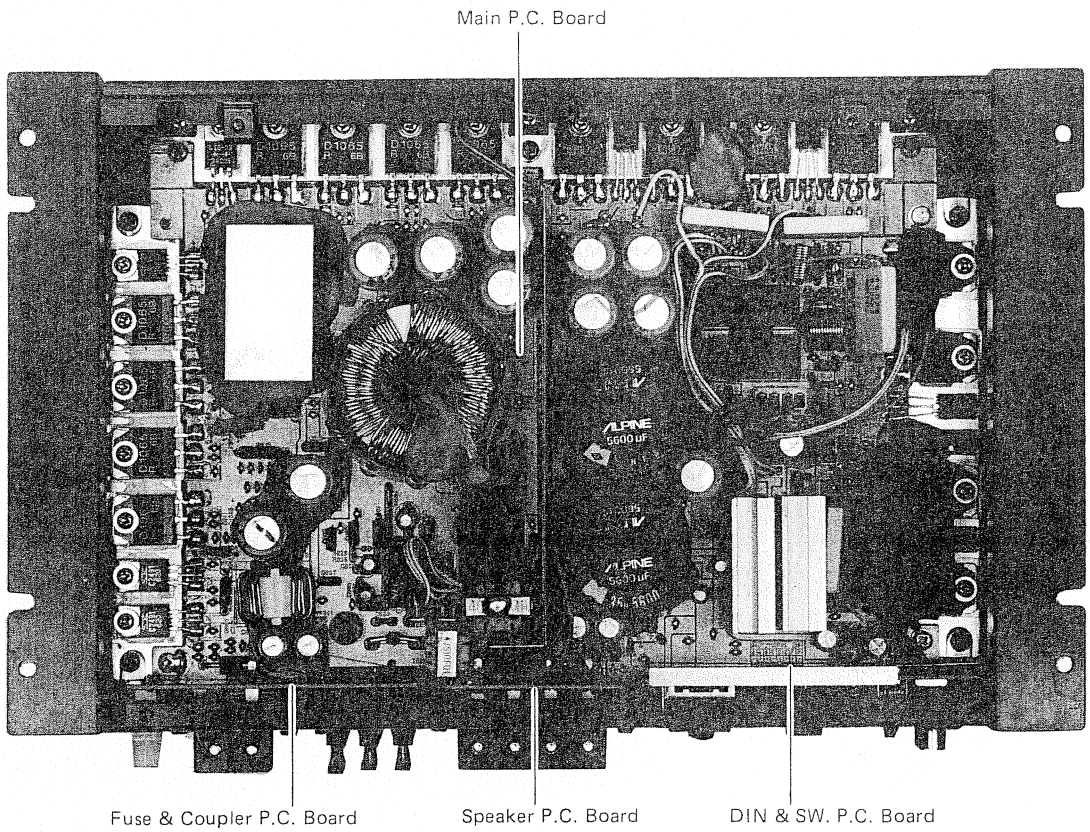



Figure 3

### 1. Removal of Bottom Cover

(1) Remove five screws marked "○" in Figure 4.

### 2. Removal of Heat Sink, Front Chassis and LED P.C.B

(1) After removal of bottom cover, remove eleven screws marked "□" in Figure 5.
(2) Disconnect the connector from LED P.C.B.
(3) Remove heat sink with front chassis and LED P.C.B.

### 3. Removal of Fuse & Coupler P.C.B, Speaker P.C.B, and DIN & SW P.C.B

(1) After removal of bottom cover, heat sink, remove two screws marked "☆" in Figure 6.
(2) Remove fourteen screws marked "△" in Figure 4.
(3) Remove solder (a, b) of Fuse & Coupler P.C.B, Speaker P.C.B, and DIN & SW P.C.B.
(4) Disconnect two connectors from there P.C.B.
(5) Fuse & Coupler P.C.B, Speaker P.C.B, DIN & SW P.C.B with Rear Cover can be removed completely.

### 4. Removal Main P.C.B

(1) After removal of Fuse & Coupler P.C.B, Speaker P.C.B, and DIN & SW P.C.B, remove solder (c ~ f) as shown in Figure 7.
(2) Remove four screws marked "■" in Figure 7.

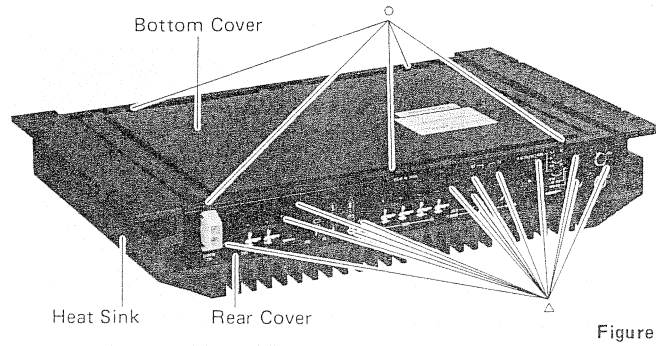



Figure 4

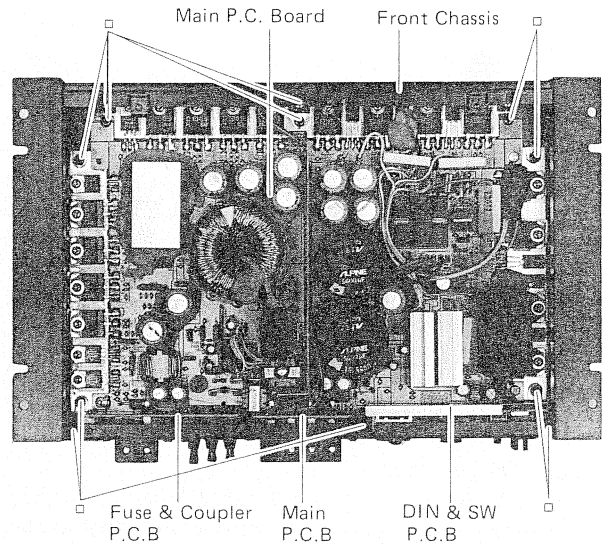
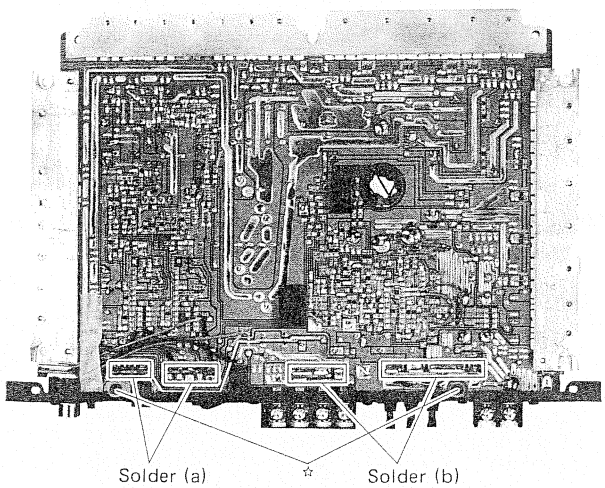



Figure 5




Fgiure 6

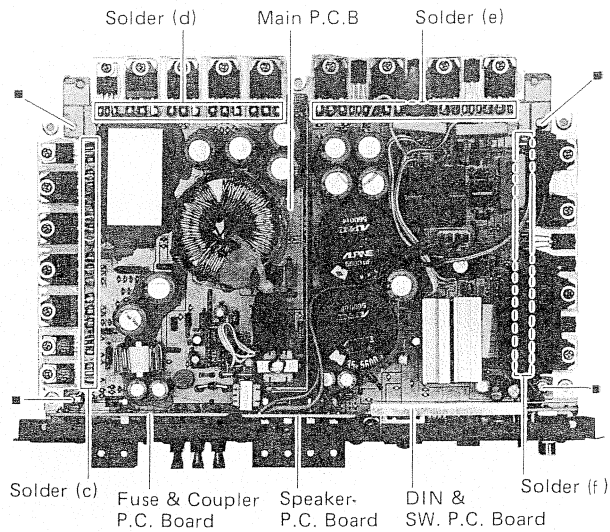



Figure 7

# Adjustment Procedures

- **Power Supply Voltage Adjustment**

(1) Connections

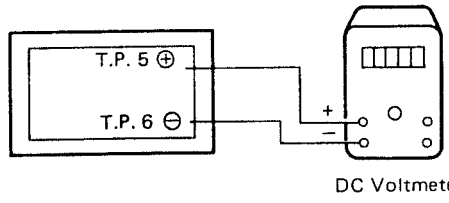



**Figure 8**

(2) Adjustment Procedures

Adjust solid-state variable resistor VR801 to obtain 66 ± 0.5 V (between T.P. 5 and T.P. 6) on the DC voltmeter.

- **Idle Current Adjustment**

(1) Connections

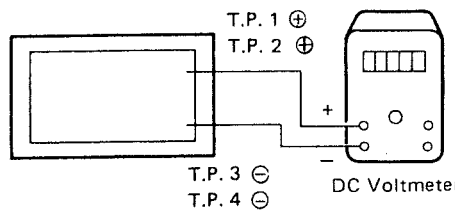


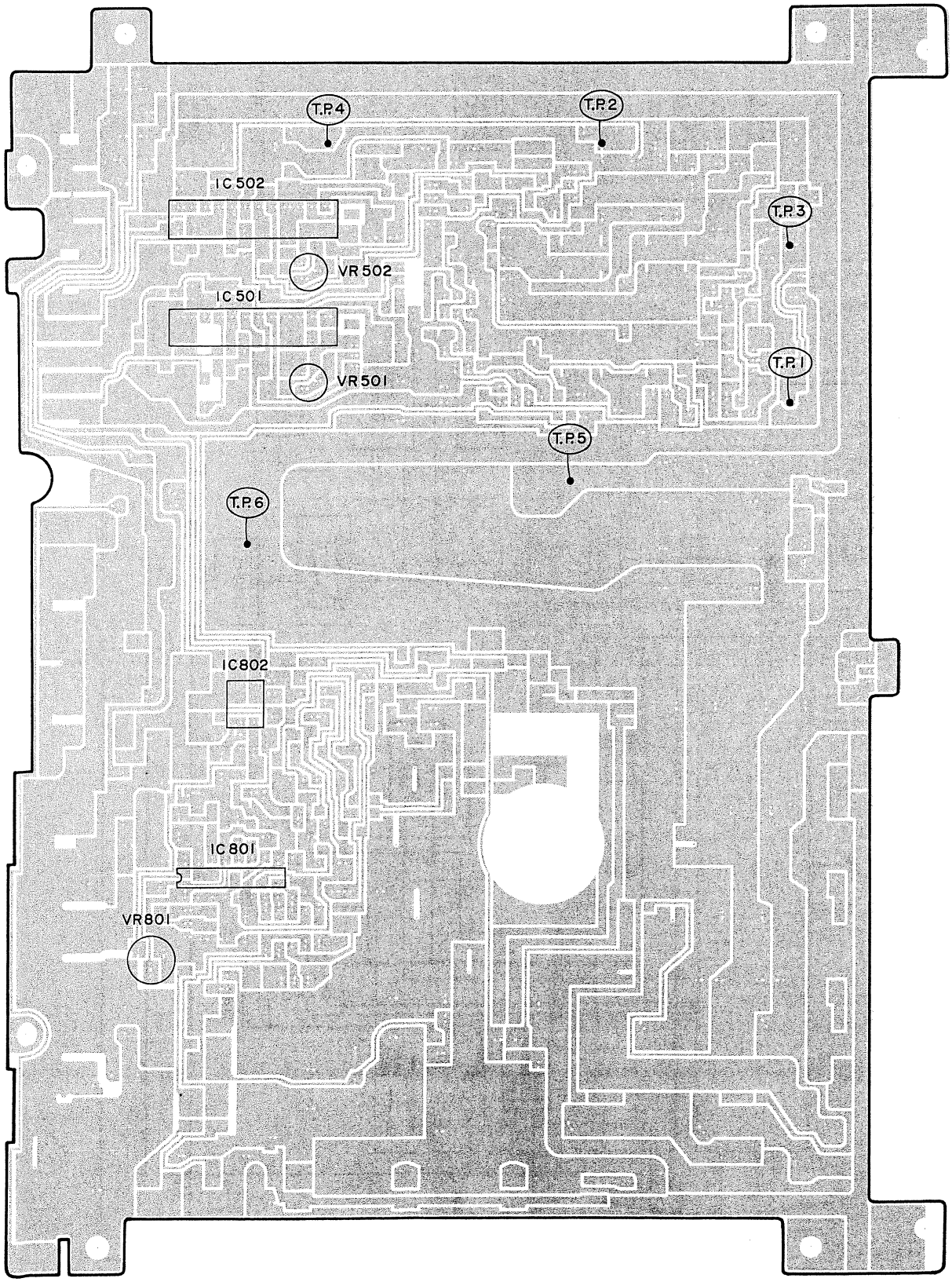

**Figure 9**

(2) Adjustment Procedures

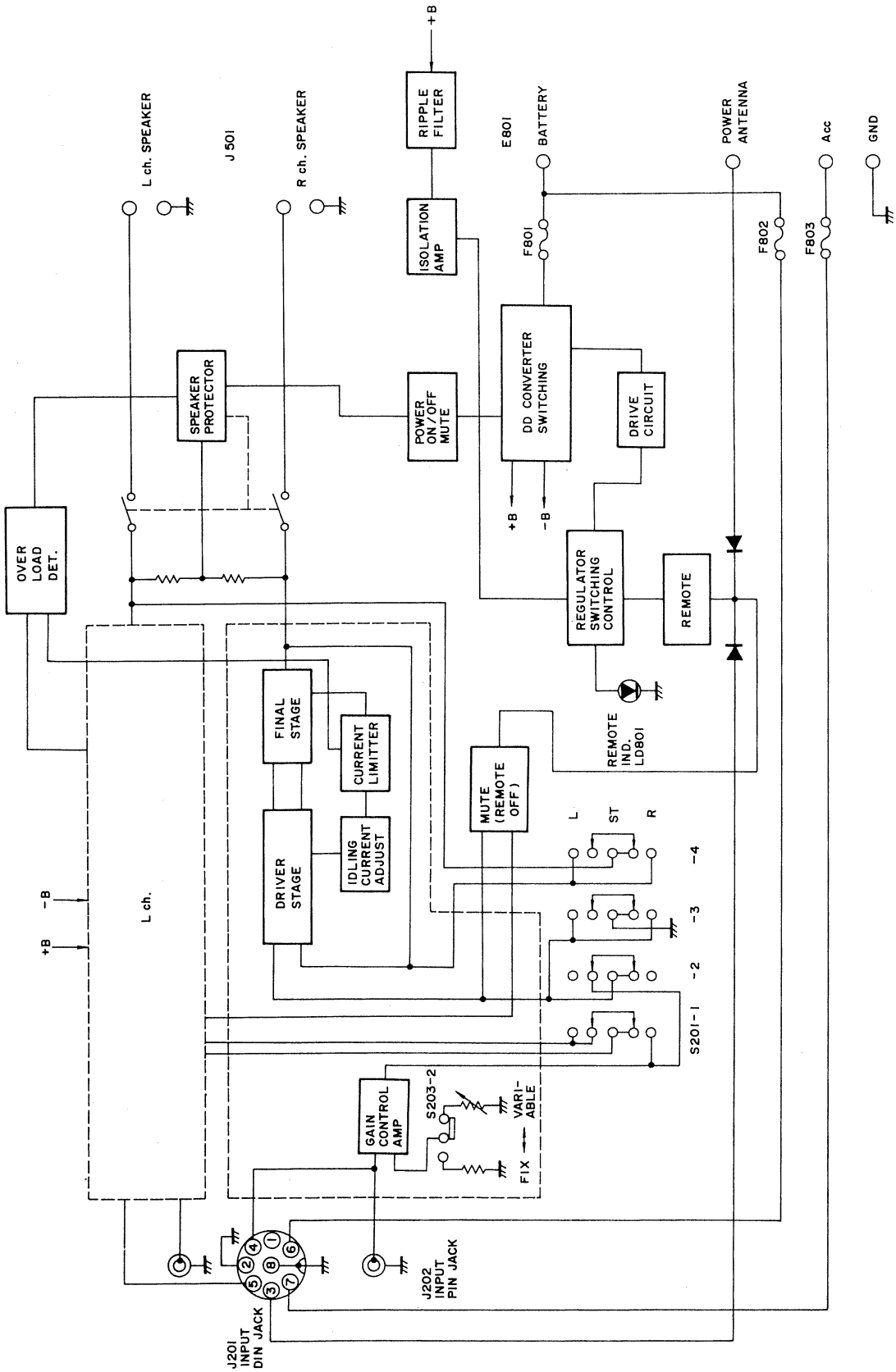
Adjust the solid-state variable resistor VR501 to obtain 10 ± 1 mV (between T.P. 1 and T.P. 3) on the DC voltmeter. In the same manner, adjust the VR502 to also obtain 10 ± 1 mV (between T.P. 2 and T.P. 4) on the DC voltmeter.

- Idle current = 5 ± 1 (mV) ÷ 0.2 (ohm) = 50 ± 5 (mA)

# Adjustment Locations



# Block Diagram



# Schematic Diagram

| | |
|---|---|
| ICs | IC501 IC502 IC201 |
| Transistors | Q580 Q590–Q592 Q581 Q501–Q506 Q593 Q594 Q516–Q523 Q507– |
| Diodes | D581 D580 D594 D591–D593 ZD590 D595 D511 D501–D504 D505–D508 |

**Voltage Measuring Conditions**
- **Power supply voltage:** DC 14.4V
- **Measuring instrument:** Digital multi voltmeter
- **Measuring point reference:**
  Power supply . . . . . Primary GND
  Amplifier . . . . . Secondary GND
- **Measuring conditions:** No signal and initial settings

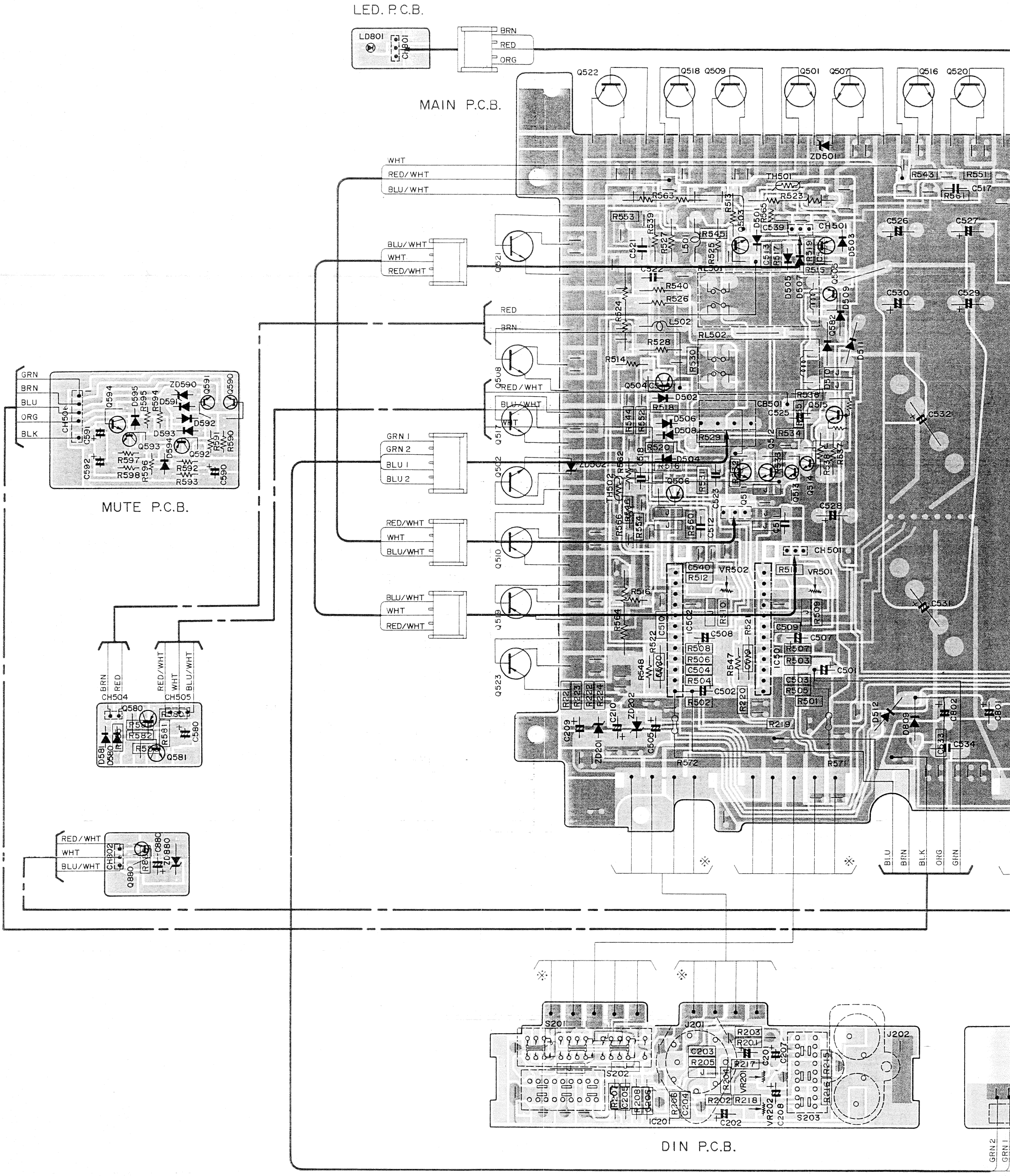


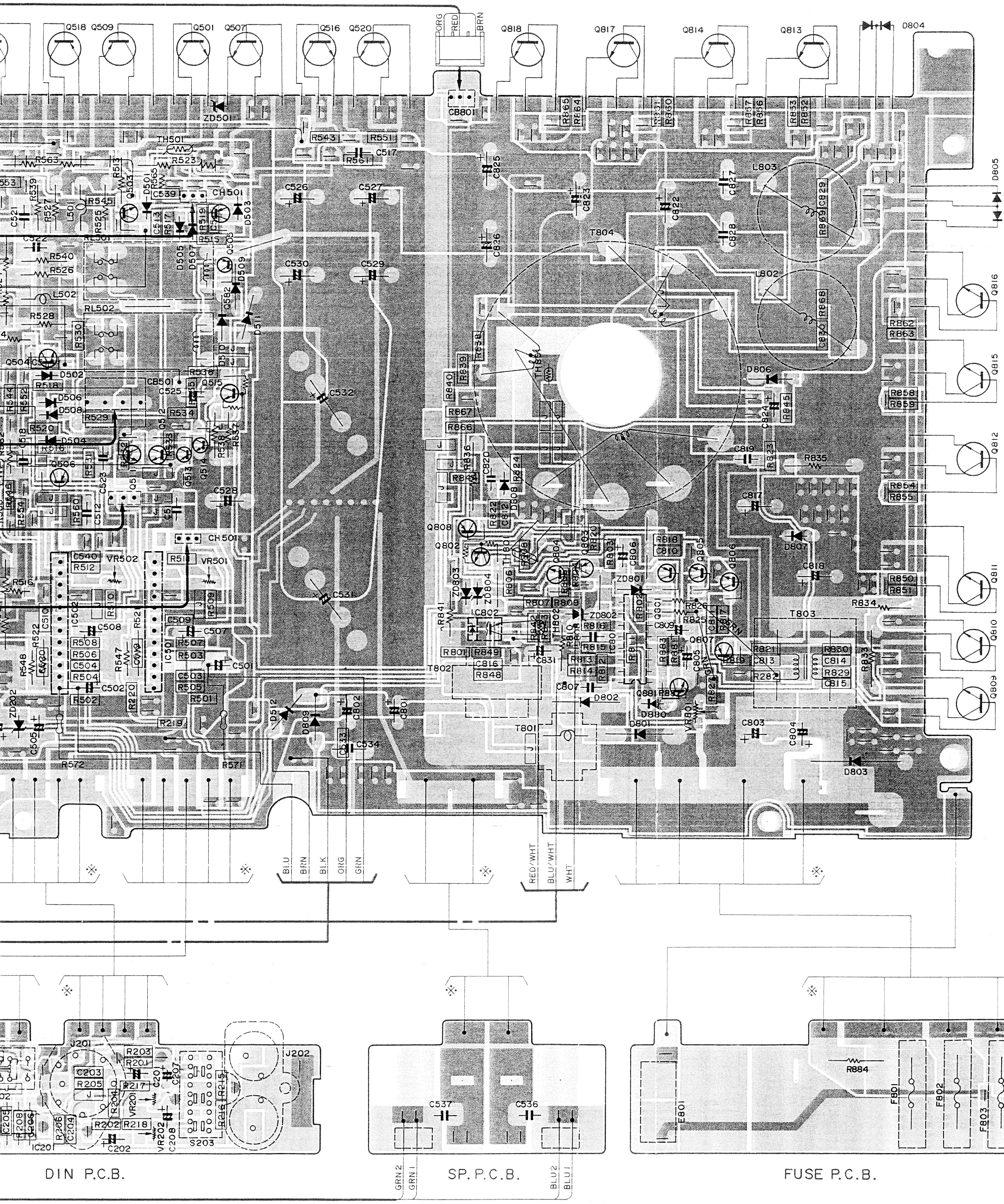

| | |
|---|---|
| ⑧ | SHIELD GROUND |
| ⑦ | +B ACC |
| ⑥ | +B BATTERY |
| ⑤ | SIGNAL LEFT IN |
| ④ | SIGNAL RIGHT IN |
| ③ | +B FOR REMOTE |
| ② | SIGNAL GROUND |
| ① | N C |

| | | |

| | | |

# Wiring Diagram and Parts Layout on P.C. Board






DIN P.C.B. SP. P.C.B. FUSE P.C.B.

# Electrical Parts List

Resistors: Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.
u = microfarads, P = picofarad, CP = chip.

| Symbol No. | Part No. | Description |
|---|---|---|
| **Main P. C. Board** | | |
| **ICs** | | |
| IC801 | 51T71049F01 | TL494CN |
| or | 51T70759F01 | uPC494C |
| IC802 | 51T70760F01 | Photo coupler PS2401-1 |
| **Transistors** | | |
| Q503 | 48T81066F01 | 2SC1615 |
| Q504 | 48T81066F01 | 2SC1615 |
| Q505 | 48T63086F01 | 2SA937M |
| Q506 | 48T63086F01 | 2SA937M |
| Q511 | 48T51091F01 | 2SC2021 |
| Q512 | 48T51091F01 | 2SC2021 |
| Q513 | 48T63086F01 | 2SA937M |
| Q514 | 48T57337F01 | 2SD1330 |
| Q515 | 48T62963F02 | DTC114 |
| Q580 | 48T81069F01 | 2SB1076 |
| Q581 | 48T57337F01 | 2SD1330 |
| Q582 | 48T62962F06 | DTA114Y |
| Q801 | 48T69177F01 | 2SA1358 |
| Q802 | 48T62540F01 | UN1211 |
| Q803 | 48T63086F01 | 2SA937M |
| Q804 | 48T51091F01 | 2SC2021 |
| Q805 | 48T51091F01 | 2SC2021 |
| Q806 | 48T51091F01 | 2SC2021 |
| Q807 | 48T63086F01 | 2SA937M |
| Q808 | 48T63086F01 | 2SA937M |
| Q880 | 48T51091F01 | 2SC2021 |
| Q881 | 48T51091F01 | 2SC2021 |
| **Diodes** | | |
| D501 | 48T70933F01 | 1SS136 |
| D502 | 48T70933F01 | 1SS136 |
| D503 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D504 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D505 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D506 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D507 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D508 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D509 | 48S40477U01 | IN4003 |
| D510 | 48S40477U01 | IN4003 |
| D511 | 48C40235G02 | 10E2 |
| D512 | 48S40477U01 | IN4003 |
| D580 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D581 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D801 | 48T68580F03 | DSA3A4-F5 |
| D802 | 48T68580F03 | DSA3A4-F5 |
| D803 | 48T68079F03 | 30D4 FA |
| D806 | 48T58593F01 | GFD 10-E G |
| D807 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D808 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| D809 | 48S40477U01 | IN4003 |
| D880 | 48T58583F01 | SS176TPA7 |
| or | 48T68828F01 | 1SS133 |
| ZD201 | 48T68697F56 | Zener HZS 16EB3 |
| or | 48T68699F48 | Zener MTZ 16-C |
| ZD202 | 48T68697F56 | Zener HZS 16EB3 |
| or | 48T68699F48 | Zener MTZ 16-C |
| ZD501 | 48T40150U09 | Zener HZ3C-3 |
| ZD502 | 48T40150U09 | Zener HZ3C-3 |
| ZD801 | 48T68697F03 | Zener HZS 3EB1 |
| ZD802 | 48T68697F66 | Zener HZS 22EB3 |
| or | 48T68699F59 | Zener MTZ 22-D |
| ZD803 | 48T68697F71 | Zener HZS 24EB4 |
| or | 48T68699F63 | Zener MTZ 24-D |
| ZD804 | 48T68697F43 | Zener HZS 11EB2 |
| or | 48T68699F36 | Zener MTZ 11-C |
| ZD880 | 48T68697F43 | Zener HZS 11EB2 |
| or | 48T68699F36 | Zener MTZ 11-C |

| Symbol No. | Part No. | Description |
|---|---|---|
| **Coils** | | |
| L501 | 24T74372F01 | Choke 1.1uH |
| L502 | 24T74372F01 | Choke 1.1uH |
| L802 | 25T73270F01 | Choke 100uH |
| L803 | 25T73270F01 | Choke 100uH |
| T801 | 25T47510F01 | Choke, Filter (EI-14) |
| T802 | 25C40894G11 | Choke, Trans |
| or | 25T71689F01 | Choke, Filter (EI-19) |
| T803 | 25T73271F01 | Choke, Common 3537 |
| **Volume Controls** | | |
| VR501 | 18T45040F05 | Variable 470 ohms |
| VR502 | 18T45040F05 | Variable 470 ohms |
| VR801 | 18B44064J02 | Variable 4.7k ohms |
| **Thermistors** | | |
| TH501 | 48T60670F01 | 20k ohms |
| TH502 | 48T60670F01 | 20k ohms |
| TH802 | 48T60670F01 | 20k ohms |
| **Relays** | | |
| RL501 | 80T70844F01 | G5R-2232P-12V |
| RL502 | 80T70844F01 | G5R-2232P-12V |
| **Capacitors** | | |
| C209 | 23S40657F21 | Electrolytic 100u 25V |
| C210 | 23S40657F21 | Electrolytic 100u 25V |
| C501 | 23T42478F09 | Electrolytic 4.7u 50V |
| C502 | 23T42478F09 | Electrolytic 4.7u 50V |
| C503 | 08S53332F32 | CP. 560P |
| C504 | 08S53332F32 | CP. 560P |
| C505 | 23T65374F12 | Electrolytic 100u 35V |
| C507 | 23S40657F11 | Electrolytic 22u 16V |
| C508 | 23S40657F11 | Electrolytic 22u 16V |
| C509 | 08S53332F17 | CP. 33P |
| C510 | 08S53332F17 | CP. 33P |
| C511 | 08T57705F75 | Mylar 0.047u |
| C512 | 08T57705F75 | Mylar 0.047u |
| C513 | 08S53332F35 | CP. 1000P |
| C514 | 08S53332F35 | CP. 1000P |
| C515 | 08S53332F35 | CP. 1000P |

| Symbol No. | Part No. | Description |
|---|---|---|
| C516 | 08S53332F35 | CP. 1000P |
| C517 | 08T57705F75 | Mylar 0.047u |
| C518 | 08T57705F75 | Mylar 0.047u |
| C519 | 08S53332F11 | CP. 10P |
| C520 | 08S53332F11 | CP. 10P |
| C521 | 08T57705F75 | Mylar 0.047u |
| C522 | 08T57705F75 | Mylar 0.047u |
| C523 | 23S41192U68 | Electrolytic 100u 10V B.P. |
| C525 | 23T65374F06 | Electrolytic 220u 16V |
| C526 | 23T69238F02 | Electrolytic 1800u 35V |
| C527 | 23T69238F02 | Electrolytic 1800u 35V |
| C528 | 23T69238F02 | Electrolytic 1800u 35V |
| C529 | 23T69238F02 | Electrolytic 1800u 35V |
| C530 | 23T69238F02 | Electrolytic 1800u 35V |
| C531 | 23T73116F01 | Electrolytic 5600u 35V |
| C532 | 23T73116F01 | Electrolytic 5600u 35V |
| C533 | 08S53332F51 | CP. 0.022m |
| C534 | 08T50579F21 | TF. 0.47m |
| C539 | 08S53332F31 | CP. 470P |
| C540 | 08S53332F31 | CP. 470P |
| C580 | 23T73862F06 | Electrolytic 100u 16V |
| C801 | 23C42170G30 | Electrolytic 470u 16V |
| C802 | 23C42170G30 | Electrolytic 470u 16V |
| C803 | 23T51232F02 | Electrolytic 1000u 16V |
| C804 | 23T51232F02 | Electrolytic 1000u 16V |
| C805 | 23S40657F10 | Electrolytic 10u 16V |
| C806 | 23T65374F02 | Electrolytic 220u 10V |
| C807 | 08T57705F79 | Mylar O.1u |
| C808 | 08T57705F55 | Mylar 1000P |
| C809 | 23S40657F10 | Electrolytic 10u 16V |
| C810 | 08S53332F23 | CP. 100P |
| C811 | 08S53332F23 | CP. 100P |
| C812 | 08S53332F23 | CP. 100P |
| C813 | 08S53332F23 | CP. 100P |
| C814 | 08S53332F35 | CP. 1000P |
| C815 | 08S53332F35 | CP. 1000P |
| C816 | 08S53332F35 | CP. 1000P |
| C817 | 23C42170G37 | Electrolytic 3300u 16V |
| C818 | 23C42170G37 | Electrolytic 3300u 16V |
| C819 | 08T57851F05 | TF 0.022u |
| C820 | 08T57851F05 | TF 0.022u |

| Symbol No. | Part No. | Description |
|---|---|---|
| C822 | 23T69238F02 | Electrolytic 1800u 35V |
| C823 | 23T69238F02 | Electrolytic 1800u 35V |
| C824 | 23S40657F10 | Electrolytic 10u 16V |
| C825 | 23T69238F02 | Electrolytic 1800u 35V |
| C826 | 23T69238F02 | Electrolytic 1800u 35V |
| C829 | 08S53332F35 | CP. 1000P |
| C830 | 08S53332F35 | CP. 1000P |
| C831 | 23T65374F04 | Electrolytic 47u 16V |
| C880 | 23S57422F15 | Electrolytic 47u 16V |
| **Resistors** | | |
| R219 | 06S53330F97 | CP. 68k ohms 1/8W |
| R220 | 06S53330F53 | CP. 1K ohms 1/8W |
| R221 | 06T70072F57 | CP. 1.5k ohms 1/4W |
| R222 | 06T70072F57 | CP. 1.5k ohms 1/4W |
| R223 | 06T70072F57 | CP. 1.5k ohms 1/4W |
| R224 | 06T70072F57 | CP. 1.5k ohms 1/4W |
| R501 | 06S53330F79 | CP. 12k ohms 1/8W |
| R502 | 06S53330F79 | CP. 12k ohms 1/8W |
| R503 | 06S53330F61 | CP. 2.2k ohms 1/8W |
| R504 | 06S53330F61 | CP. 2.2k ohms 1/8W |
| R505 | 06S53330F93 | CP. 47k ohms 1/8W |
| R506 | 06S53330F93 | CP. 47k ohms 1/8W |
| R507 | 06S53330F77 | CP. 10k ohms 1/8W |
| R508 | 06S53330F77 | CP. 10k ohms 1/8W |
| R509 | 06S53330F59 | CP. 1.8k ohms 1/8W |
| R510 | 06S53330F59 | CP. 1.8k ohms 1/8W |
| R511 | 06S53330F41 | CP. 330 ohms 1/8W |
| R512 | 06S53330F41 | CP. 330 ohms 1/8W |
| R515 | 06S53330F49 | CP. 680 ohms 1/8W |
| R517 | 06S53330F81 | CP. 15k ohms 1/8W |
| R518 | 06S53330F81 | CP. 15k ohms 1/8W |
| R519 | 06S53330F81 | CP. 15k ohms 1/8W |
| R520 | 06S53330F81 | CP. 15k ohms 1/8W |
| R523 | 06T51107F02 | Cement 0.1 ohms 5W |
| R524 | 06T51107F02 | Cement 0.1 ohms 5W |
| R525 | 06T67581F12 | Carbon Film 22 ohms 1/2W |
| R526 | 06T67581F12 | Carbon Film 22 ohms 1/2W |
| R527 | 06T67581F12 | Carbon Film 22 ohms 1/2W |
| R528 | 06T67581F12 | Carbon Film 22 ohms 1/2W |
| R529 | 06S53330F79 | CP. 12k ohms 1/8W |
| R530 | 06S53330F79 | CP. 12k ohms 1/8W |
| R531 | 06S53330F53 | CP. 1k ohms 1/8W |
| R532 | 06S53330F65 | CP. 3.3k ohms 1/8W |
| R533 | 06S53330F77 | CP. 10k ohms 1/8W |
| R534 | 06S53330F77 | CP. 10k ohms 1/8W |
| R535 | 06S53330F89 | CP. 33k ohms 1/8W |
| R536 | 06S53331F06 | CP. 150k ohms 1/8W |
| R537 | 06T67581F18 | Carbon Film 68 ohms 1/2W |
| R538 | 06T67581F22 | Carbon Film 150 ohms 1/2W |
| R539 | 06T67581F12 | Carbon Film 22 ohms 1/2W |
| R540 | 06T67581F12 | Carbon Film 22 ohms 1/2W |
| R543 | 06S53330F05 | CP. 10 ohms 1/8W |
| R544 | 06S53330F05 | CP. 10 ohms 1/8W |
| R545 | 06S53330F05 | CP. 10 ohms 1/8W |
| R546 | 06S53330F05 | CP. 10 ohms 1/8W |
| R551 | 06S53330F05 | CP. 10 ohms 1/8W |
| R552 | 06S53330F05 | CP. 10 ohms 1/8W |
| R553 | 06S53330F05 | CP. 10 ohms 1/8W |
| R554 | 06S53330F05 | CP. 10 ohms 1/8W |
| R561 | 06S53330F17 | CP. 33 ohms 1/8W |
| R563 | 06T51107F02 | Cement 0.1 ohms 5W |
| R564 | 06T51107F02 | Cement 0.1 ohms 5W |
| R580 | 06S53330F77 | CP. 10k ohms 1/8W |
| R581 | 06S53330F77 | CP. 10k ohms 1/8W |
| R582 | 06S53330F45 | CP. 470 ohms 1/8W |
| R583 | 06S53330F77 | CP. 10k ohms 1/8W |
| R584 | 06S53330F53 | CP. 1k ohms 1/8W |
| R585 | 06S53331F02 | CP. 100k ohms 1/8W |
| R801 | 06S53330F77 | CP. 10k ohms 1/8W |
| R802 | 06S53330F65 | CP. 3.3k ohms 1/8W |
| R803 | 06S53330F53 | CP. 1k ohms 1/8W |
| R804 | 06S53330F77 | CP. 10k ohms 1/8W |
| R805 | 06S53331F19 | CP. 510k ohms 1/8W |

| Symbol No. | Part No. | Description |
|---|---|---|
| R806 | 06S53330F77 | CP. 10k ohms 1/8W |
| R807 | 06S53330F84 | CP. 20k ohms 1/8W |
| R808 | 06S53330F37 | CP. 220 ohms 1/8W |
| R809 | 06S53330F84 | CP. 20k ohms 1/8W |
| R811 | 06S53330F76 | CP. 9.1k ohms 1/8W |
| R812 | 06S53331F02 | CP. 100k ohms 1/8W |
| R813 | 06S53330F96 | CP. 62k ohms 1/8W |
| R814 | 06S53330F60 | CP. 2k ohms 1/8W |
| R815 | 06S53330F77 | CP. 10k ohms 1/8W |
| R816 | 06S53330F83 | CP. 18k ohms 1/8W |
| R817 | 06S53330F94 | CP. 51k ohms 1/8W |
| R818 | 06S53330F94 | CP. 51k ohms 1/8W |
| R819 | 06S53330F70 | CP. 5.1k ohms 1/8W |
| R820 | 06S53330F70 | CP. 5.1k ohms 1/8W |
| R821 | 06S53330F94 | CP. 51k ohms 1/8W |
| R822 | 06S53330F94 | CP. 51k ohms 1/8W |
| R823 | 06S53330F70 | CP. 5.1k ohms 1/8W |
| R824 | 06S53330F70 | CP. 5.1k ohms 1/8W |
| R827 | 06S53330F47 | CP. 560 ohms 1/8W |
| R828 | 06S53330F47 | CP. 560 ohms 1/8W |
| R829 | 06S53330F26 | CP. 75 ohms /8W |
| R830 | 06S53330F26 | CP. 75 ohms /8W |
| R833 | 06T55175F17 | Metal Film 10 ohms 1/2W |
| R834 | 06T55175F17 | Metal Film 10 ohms 1/2W |
| R835 | 06T55177F17 | Metal Film 10 ohms 1W |
| R836 | 06T55177F17 | Metal Film 10 ohms 1W |
| R838 | 06S53330F59 | CP. 1.8k ohms 1/8W |
| R839 | 06S53330F59 | CP. 1.8k ohms 1/8W |
| R840 | 06S53330F59 | CP. 1.8k ohms 1/8W |
| R842 | 06S53330F69 | CP. 4.7k ohms 1/8W |
| R843 | 06S53330F46 | CP. 510 ohms 1/8W |
| R844 | 06S53330F50 | CP. 750 ohms 1/8W |
| R845 | 06S53330F77 | CP. 10k ohms 1/8W |
| R848 | 06S53330F61 | CP. 2.2k ohms 1/8W |
| R849 | 06S53331F06 | CP. 150k ohms 1/8W |
| R850 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R851 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R852 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R853 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R854 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R855 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R856 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R857 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R858 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R859 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R860 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R861 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R862 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R863 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R864 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R865 | 06T70072F78 | CP. 2.2 ohms 1/4W |
| R866 | 06S53330F50 | CP. 750 ohms 1/8W |
| R867 | 06S53330F50 | CP. 750 ohms 1/8W |
| R868 | 06S53330F43 | CP. 390 ohms 1/8W |
| R869 | 06S53330F43 | CP. 390 ohms 1/8W |
| R880 | 06S53330F77 | CP. 10k ohms 1/8W |
| R881 | 06S53330F53 | CP. 1k ohms 1/8W |
| R882 | 06S53330F53 | CP. 1k ohms 1/8W |
| R883 | 06S53330F70 | CP. 5.1k ohms 1/8W |

## DIN & Switch P. C. Board

**Capacitors**

| | | |
|---|---|---|
| C201 | 23T42478F24 | Electrolytic 1u 50V |
| C202 | 23T42478F24 | Electrolytic 1u 50V |
| C203 | 08S53332F27 | CP. 220P |
| C204 | 08S53332F27 | CP. 220P |
| C205 | 08S53332F23 | CP. 100P |
| C206 | 08S53332F23 | CP. 100P |
| C207 | 23T61524F03 | Electrolytic 100u 4V |
| C208 | 23T57007F19 | Electrolytic 100u 4V |
| C536 | 08T57851F05 | TF 0.022u |
| C537 | 08T57851F05 | TF 0.022u |

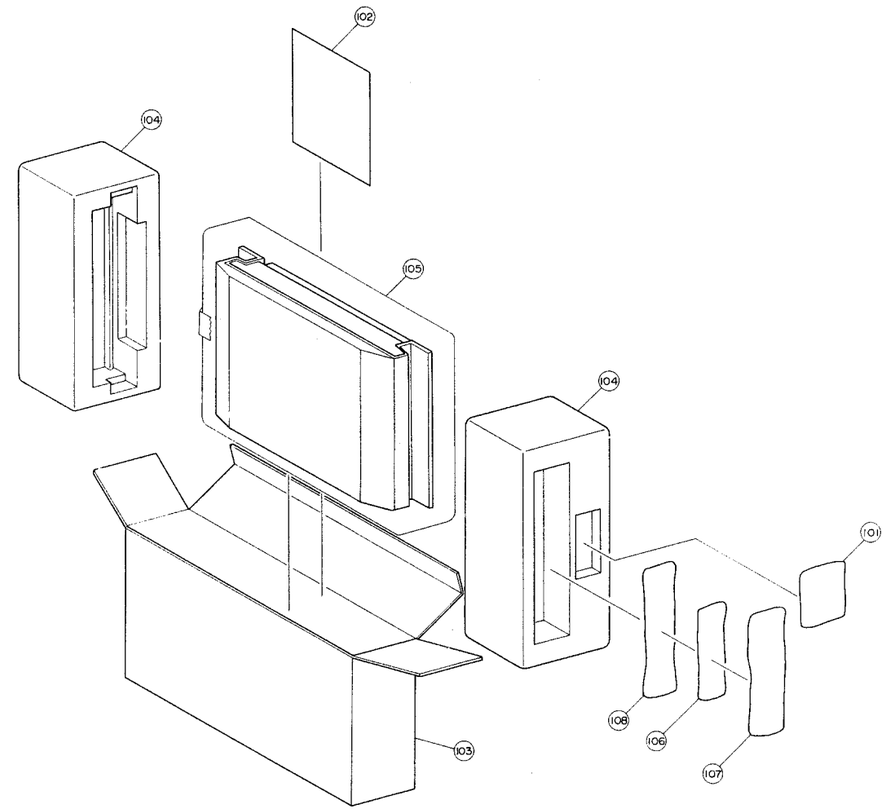
**Resistors**

| | | |
|---|---|---|
| R201 | 06S53330F53 | CP. 1k ohms 1/8W |
| R202 | 06S53330F53 | CP. 1k ohms 1/8W |
| R203 | 06S53330F77 | CP. 10k ohms 1/8W |
| R204 | 06S53330F77 | CP. 10k ohms 1/8W |
| R205 | 06S53331F02 | CP. 100k ohms 1/8W |
| R206 | 06S53331F02 | CP. 100k ohms 1/8W |
| R207 | 06S53330F75 | CP. 8.2k ohms 1/8W |
| R208 | 06S53330F75 | CP. 8.2k ohms 1/8W |
| R215 | 06S53330F60 | CP. 2k ohms 1/8W |
| R216 | 06S53330F60 | CP. 2k ohms 1/8W |
| R217 | 06S53330F41 | CP. 330 ohms /8W |
| R218 | 06S53330F41 | CP. 330 ohms /8W |

| Symbol No. | Part No. | Description |
|---|---|---|
| **IC** | | |
| IC201 | 51T73087F01 | NJM2068D |
| **Volume Controls** | | |
| VR201 | 18T74439F15 | Variable 22k ohms |
| VR202 | 18T74439F15 | Variable 22k ohms |
| **Switches** | | |
| S201 | 40T73274F01 | Slide SSA-063 |
| S202 | 40T73273F01 | Slide SSA-062 |
| S203 | 40T73273F01 | Slide SSA-062 |
| **Resistor** | | |
| R844 | 06T81067F01 | CS. 0.1 ohms 1W |
| Mute P. C. Board | | |
| **Transisitors** | | |
| Q590 | 48T57305F01 | 2SD1302 |
| Q591 | 48T57305F01 | 2SD1302 |
| Q592 | 48T63086F01 | 2SA937M |
| Q593 | 48T51091F01 | 2SC2021 |
| Q594 | 48T51091F01 | 2SC2021 |
| **Diodes** | | |
| D591 | 48T68828F01 | 1SS133 |
| D592 | 48T68828F01 | 1SS133 |
| D593 | 48T68828F01 | 1SS133 |
| D594 | 48T68828F01 | 1SS133 |
| D595 | 48T68828F01 | 1SS133 |
| ZD590 | 48T68697F01 | Zener HZS2.7EB1 |
| **Capacitors** | | |
| C590 | 23S61523F12 | Electrolytic 10u 16V |
| C591 | 23T73862F06 | Electrolytic 100u 16V |
| C592 | 23T73862F06 | Electrolytic 100u 16V |
| Miscellanues Parts | | |
| **ICs** | | |
| IC501 | 51T58602F01 | uPC1225H |
| IC502 | 51T58602F01 | uPC1225H |
| **Transistors** | | |
| Q501 | 48T64376F01 | 2SC3423 |
| Q502 | 48T64376F01 | 2SC3423 |
| Q507 | 48T58609F01 | 2SC3182 |
| Q508 | 48T58609F01 | 2SC3182 |
| Q509 | 48T58610F01 | 2SA1265 |
| Q510 | 48T58610F01 | 2SA1265 |
| Q516 | 48T69176F01 | 2SC3421 |
| Q517 | 48T69176F01 | 2SC3421 |
| Q518 | 48T69177F01 | 2SA1358 |
| Q519 | 48T69177F01 | 2SA1358 |
| Q520 | 48T58609F01 | 2SC3182 |
| Q521 | 48T58609F01 | 2SC3182 |
| Q522 | 48T58610F01 | 2SA1265 |
| Q523 | 48T58610F01 | 2SC1265 |
| Q809 | 48T69193F01 | 2SC2491 |
| Q810 | 48T69193F01 | 2SC2491 |
| Q811 | 48T47613F01 | 2SD1065 |
| Q812 | 48T47613F01 | 2SD1065 |
| Q813 | 48T47613F01 | 2SD1065 |
| Q814 | 48T47613F01 | 2SD1065 |
| Q815 | 48T47613F01 | 2SD1065 |
| Q816 | 48T47613F01 | 2SD1065 |
| Q817 | 48T47613F01 | 2SD1065 |
| Q818 | 48T47613F01 | 2SD1065 |
| **Diodes** | | |
| D804 | 48T61597F01 | CTG22S |
| D805 | 48T61597F02 | CTG22R |
| **Coil** | | |
| T804 | 25T73272F01 | Trans, DC-DC Cont |
| **Thermistor** | | |
| TH801 | 48T60670F01 | 20k ohms |
| **Others** | | |
| E801 | 01T74571F01 | Assy, Coupler 2P |
| F801 | 65T58596F08 | Fuse Auto 30A |
| F802 | 65T58596F01 | Fuse Auto 3A |
| F803 | 65T58596F01 | Fuse Auto 3A |
| J201 | 09T70752F01 | Soket, DIN 8P |
| J202 | 09T70753F01 | Jack, RCA 2P |
| J501 | 29T73269F01 | Terminal Block 4P |
| J801 | 29T73268F01 | Terminal Block 2P |
| LD801 | 48T52238F02 | LED, PR5552K (RED) |



# Packing Method View

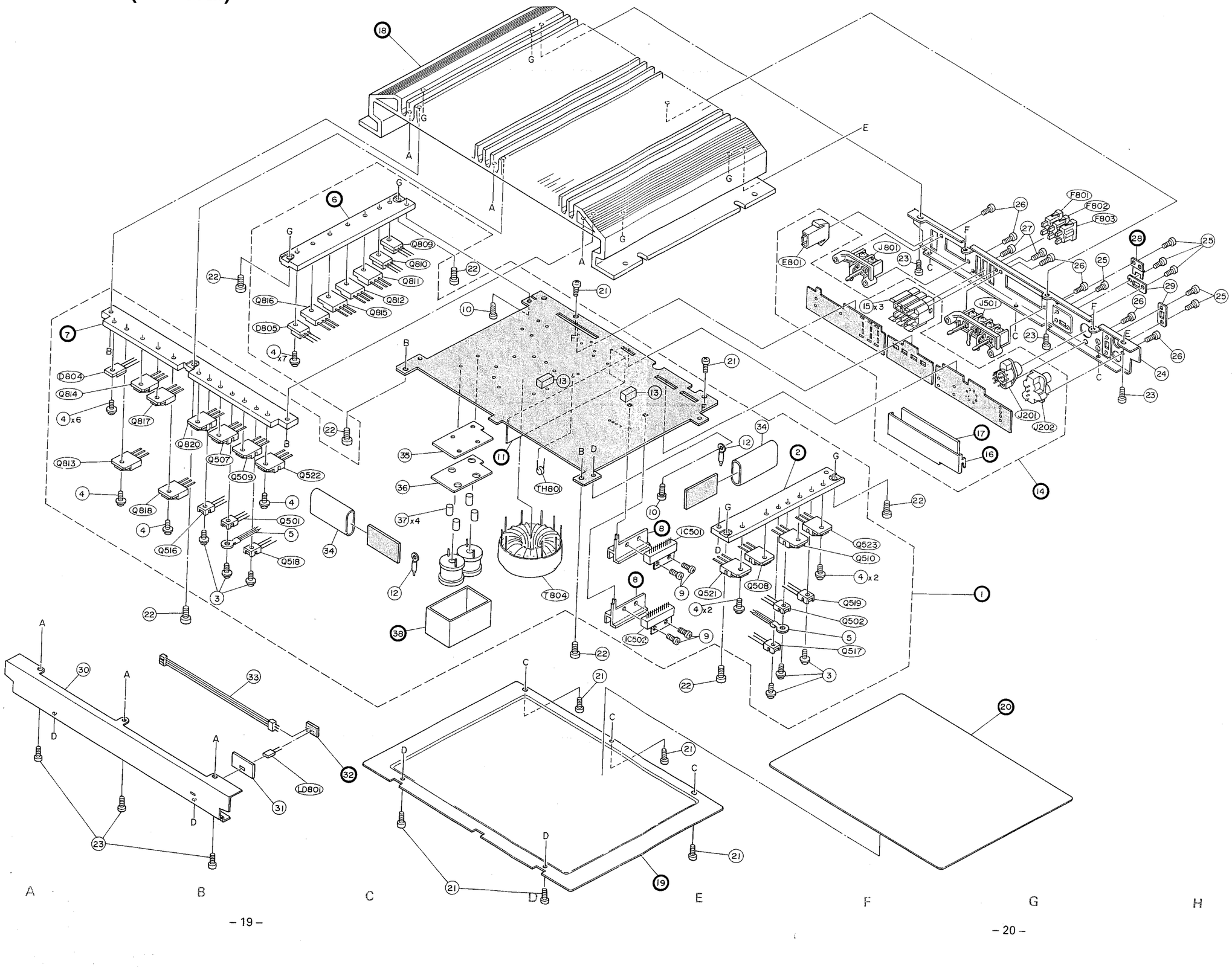



# Packing Parts List

| Sym-bol No. | Part No. | Description |
|---|---|---|
| Packing Assembly Parts | | |
| 101 | 01V73700F38 | Assy, Kit Installation |
| □102 | 01V73700F39 | Assy, Pamphlet |
| △102 | 68P73333F12 | Owner's Manual |
| □103 | 56S69254F57 | Carton, PKG. (Individual) |
| △103 | 56S69254F78 | Carton Packing (Individual) |
| 104 | 56D73280F01 | Tray, PKG. F |
| 105 | 56B72811F03 | Sack, Polyethylene |
| 106 | 01T73275F01 | Assy, Kit Wire (SP) |
| 107 | 01T73276F01 | Assy, Kit Wire Power |
| 108 | 01T74572F01 | Assy, Kit Wire Couple |

□ :for North America Model only
△ :for General Export Model only
Others Common

# Exploded View (General)



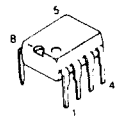
# Mechanical Parts List

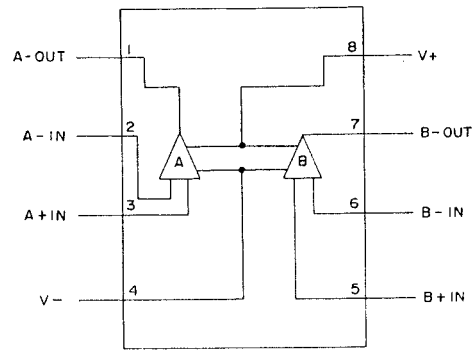
| Symbol No. | Index | Part No. | Description |
|---|---|---|---|
| 3 | | 03S71252F04 | Screw W/D Washer (M3x9) |
| 4 | | 03S71252F05 | Screw W/D Washer (M3x10) |
| 5 | 4B | 09T74442F01 | Holder TH |
| 9 | | 03S71031F08 | Screw Bind (M3x5) |
| 10 | | 03S71031F07 | Screw Bind (M3x6) |
| 12 | 4C,4E | 29T80863F01 | P Lug |
| 13 | 3B,3E | 75S72374F36 | Cushion Rubber |
| 15 | 3F | 09T70751F01 | Holder Auto Fuse 1P |
| 21 | | 03S44205G04 | Screw, Pan (M3x5) |
| 22 | | 03S63857F39 | Screw, Tapping (M3x12) |
| 23 | | 03S63857F36 | Screw, Tapping (M3x6) |
| 24 | 3H | 27C73132F01 | Chassis Rear 3537 |
| 25 | | 03S43997P51 | Screw Pan (M2.6x4) |
| 26 | | 03S40012G41 | Screw Tapping (M3x8) |
| 27 | | 03S68555F02 | Screw Pan (M2x5.5) |
| 29 | 3H | 14A73139F01 | Insulator, Switch Lock |
| 30 | 5A | 27C73133F01 | Chassis Front 3537 |
| 31 | 6B | 15B70599F01 | Cover LED |
| 33 | 5B | 01D61220F91 | Assy., Connector 3P |
| 34 | 4C,4E | 37T43734F05 | Sumi Tube |
| 35 | 4C | 75A81336F01 | Cushion Plate |
| 36 | 4C | 26A81335F01 | Shield Plate |
| 37 | 4C | 37S43996G01 | Silicon Glass Tube |

**Note: The parts without part numbers are not supplied.**

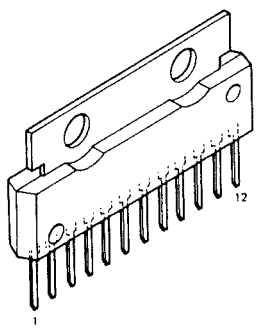
# Semiconductors Leads Identifications

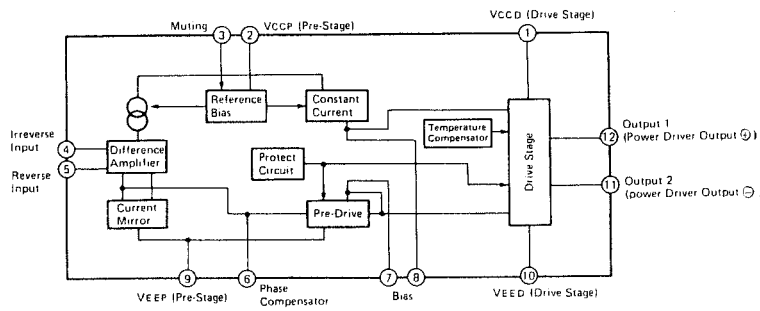
**NJM2068D:** IC201



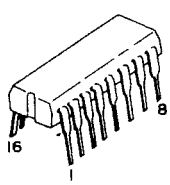


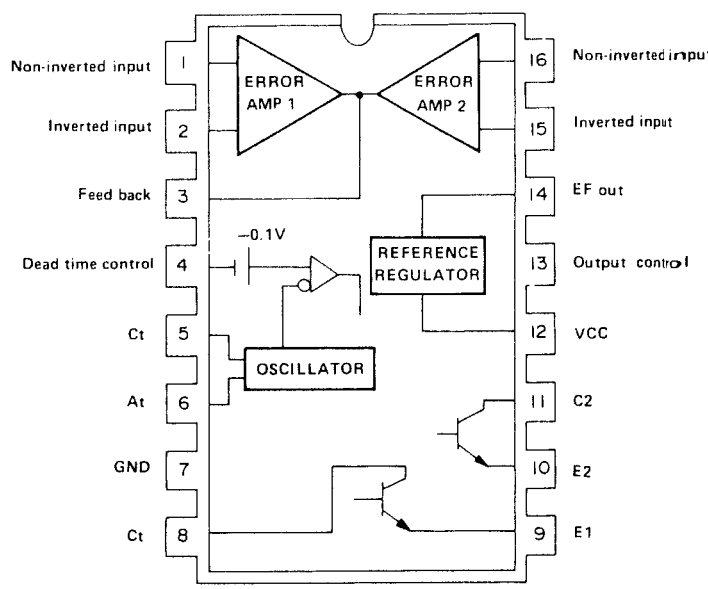

**μPC1225H:** IC501



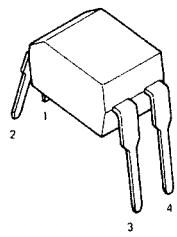


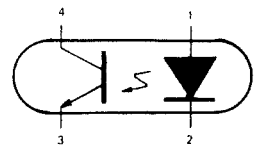

**μPC494C:** IC801
**TL494CN**



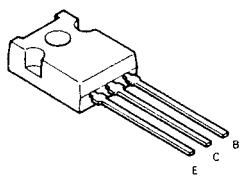


**PC2401:** IC802

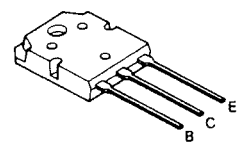


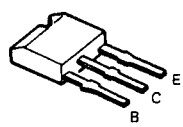

**2SC3423:** Q501, Q502
**2SC3421:** Q516, Q517
**2SA1358:** Q518, Q519, Q801



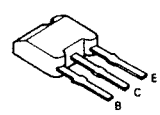

**2SC3182:** Q507, Q508, Q520, Q521
**2SA1265:** Q509, Q510, Q522, Q523

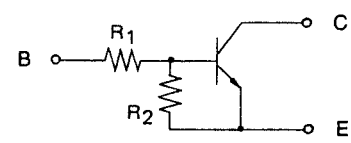



**2SC1615:** Q503, Q504
**2SC2021:** Q511, Q512, Q593, Q594,
Q804, Q805, Q806, Q880, Q881

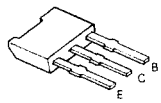



**UN1211:** Q802

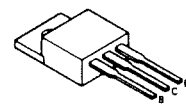


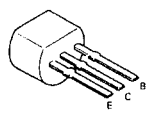
**2SB1076M:** Q580



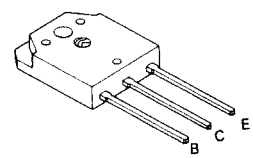

**2SC2491:** Q809, Q810



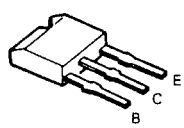

**2SD1302:** Q590, Q591



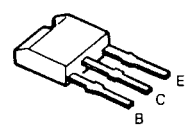

**2SD1065:** Q811–Q818

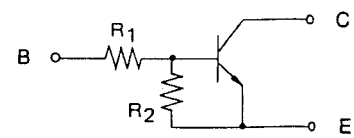



**2SA937:** Q505, Q506, Q513, Q592, Q803, Q807, Q808

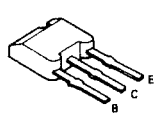



**DTC114:** Q515

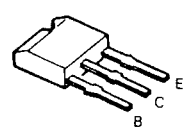


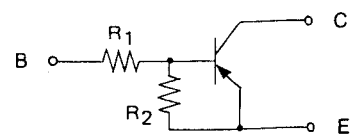




**2SD1330:** Q514, Q581




**DTA114Y:** Q582



# Schematic Diagram

| | |
|---|---|
| ICs | IC501 IC502 IC201 |
| Transistors | Q580 Q590–Q592 Q581 Q501–Q506 Q593 Q594 Q516–Q523 Q507–Q |
| Diodes | D581 D580 D594 D591–D593 ZD590 D595 D511 D501–D504 D505–D508 |

**Voltage Measuring Conditions**
- **Power supply voltage:** DC 14.4V
- **Measuring instrument:** Digital multi voltmeter
- **Measuring point reference:**
  Power supply . . . . . Primary GND
  Amplifier . . . . . Secondary GND
- **Measuring conditions:** No signal and initial settings

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | IC802 | | | | | IC801 | | | | | | |
| Q523 | Q507–Q510 | | | Q511–Q515 | Q582 | | | Q880 Q881 | | | | Q805–Q810 Q801 Q802 | | Q803 | Q811–Q814 Q804 | | | Q815–Q818 | | | | |
| 3 | | ZD201 ZD202 | | | D509 | | D510 | D512 | ZD880 D880 | | ZD803 ZD804 | D809 | ZD801 | | | D807 D808 | | ZD802 | | D804–D806 D801–D803 | | LD801 | |